DOCUMENT RESUME

ED 251 345 SO 016 008

AUTHOR Gordon, Ronald D.
TITLE Creativity and the Behavioral Sciences.
PUB DATE 84
NOTE 9p.; Paper presented at the National Conference on Science and Creativity (Honolulu, HI, March 24-25, 1985).
PUB TYPE Viewpoints (120) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Behavioral Science Research; *Behavioral Sciences; Creative Thinking; *Creativity; Educational Needs; Graduate Study; Higher Education; Perspective Taking; Research Methodology; Research Needs; Social Science Research; Synthesis
IDENTIFIERS Brain Hemispheres; *Lateral Thinking; *Vertical Thinking

ABSTRACT

Ways in which behavioral scientists can use both vertical (logical) and lateral (creative-intuitive) thinking to improve their research are discussed. Creativity in the selection of research questions would require that behavioral scientists ask questions whose answers could make a difference to societal and world well-being. Behavioral scientists must explore through lateral thinking various kinds of research methodologies and choose those that best match the topic(s) under research. The most creative step that a behavioral scientist might undertake would be not to collect yet another piece of data, but to synthesize more of the knowledge that already exists. It is the creative investigator who can discover pattern, who can draw into greater unity that which had been widespread. What is needed is a course in creativity training for Ph.D. candidates in the behavioral sciences. In such a course, neophyte researchers would learn to establish greater contact with their right hemisphere capacities in order to acquire lateral as well as vertical thinking skills. A combination of lateral and vertical thinking styles can create complementary perspectives and in the process a new dimension can be conceived. (RM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED251345

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Ronald D. Gordon

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Creativity and the Behavioral Sciences

Ronald D. Gordon, Ph.D.
The College of Arts and Sciences
Speech Discipline
The University of Hawaii, Hilo, HI 96720

SO 016 008

Prepared for the National Conference on Science and Creativity
to be held in Honolulu, Hawaii,
March 24-25, 1985

Creativity and the Behavioral Sciences

Behavioral scientists tend to specialize in what De Bono (1968) has termed "vertical thinking." Vertical thinking is logical, analytical, linear, precise, measured, critical. It categorizes, gives detailed labels and dissects. It is the most respectable type of thinking within most sciences. Lateral thinking proceeds differently. James' "willing suspension of disbelief" prevails, and eureka moments of "ah-ha!" are sought through extra-logical means. Vertical thinking is wooden blocks of ideas stacked each atop the other, each fitting those others as neatly as possible. Lateral thinking is these same blocks cast deliberately upon the floor, each to assume a range of more spontaneous places in relation to the others, all of this to be explored for interesting and hopefully useful arrangement.[1]

De Bono (Ch. 1) states flatly that "New ideas depend on lateral thinking, for vertical thinking has inbuilt limitations which make it much less effective for this purpose. These limitations of vertical thinking cannot be set aside, for they are its very advantages, looked at from a different point of view." Vertical and lateral thinking styles, then, are not to be seen as incompatible, but as complementary. When verification is needed, vertical thinking can serve the thinker well. When discovery of question and method is needed, vertical thinking benefits from being supplemented by lateral thinking.

In spite of the complementarity possible between vertical and lateral thinking styles, it seems that most behavioral scientists proceed fairly independently of much lateral thinking. As a result, there are major ways in which the behavioral sciences could be said to suffer from a lack of creativity. The limited space available here does not permit an elaborate treatment of the issue. It can only be asserted that behavioral scientists are too often uncreative in the questions they ask, the uses made of the answers gotten, and the methods used to get them. One suggestion for possible change will be woven into this abbreviated discussion.

Creative of Question. Karl Weick holds an endowed chair in organizational behavior at Cornell. He is also editor of Administrative Science Quarterly. In 1982 Weick wrote that "Most social science research is a demonstration of facts we already know to be true, but about which we feel hesitant to make assertions given professional norms about the correct form of truth. In the interest of acceptability, we gild the inquiry as if it were detached discovery and as if disconfirmation were the goal." One of this country's most distinguished social psychologists, William McGuire (1973), has suggested that this tendency has its antecedents in the graduate training of behavioral scientists, where "we try to train people to be good enough stage managers so that they can create in the laboratory simulations of realities in which the obvious correctness of our hypothesis can be demonstrated." McGuire's observation reminds me of a study in one of the communication journals of what were termed "Friendly Insult Greetings (FIGS)." It was found that the greeting "Hi dummy" or "Hi stupid" is acceptable at the "friend stage" of interpersonal relationship, but is not well received prior to that stage. To account for this finding, the concepts that were advanced included "rules-system," "devious messages," "pragmatic vs. semantic levels of meaning," "the cooperative principle," "level of uncertainty," "normative behavior expectancy," "relational level," and "relationship development." The general conclusion was that "Friendly Insult Greetings (FIGS) are perceived as non-normative risky behaviors within the cooperative principle as demands which are not considered mutually relevant until the relational stage is reached."

It was Immanuel Kant (Dubos, 1965) who astutely noted that "To yield to every whim of curiosity, and to allow our passion for inquiry to be restrained by nothing but the

limits of our ability, this shows an eagerness of mind not unbecoming to scholarship. But it is wisdom that has the merit of selecting from among the innumerable problems which present themselves, those whose solution is important to mankind."

Creativity in the selection of research questions, for this writer, would entail the asking of questions whose answers could make a difference to societal and world well-being (Gordon, 1982). In the context of the present-day behavioral sciences, this would indeed stand out as a creative act.

One could go on to amass a substantial assortment of quotes from highly credible sources within the field who have argued that in the selection of research questions there is frequently excessive timidity and irrelevance. There is a lack of creative response to the challenges placed in front of behavioral scientists to be of direct value to both our society and the world. There is no shortage of seminal and illustrious researchers who have publicly reflected on this and allied concerns (e.g., see Kidd and Saks, 1980).[2]

Creative of Method. Beyond asking socially useful questions, behavioral scientists could be more creative by being more exploratory in the methods they adopt to answer the questions they have posed. Excessive concern with propriety of method can drive-out imagination. Einstein is reported to have said of his own research (Thayer, 1983), "There is no logical way to discover these elementary laws; there is only the way of intuition." Einstein discovered his general theory of relativity not as a result of careful experimentation, but on the basis of symmetry and mathematical elegance. Methodologically, he ran counter to prevailing scientific norms of vertical thinking. There is great difference between a truly innovative scientist and a scientizer (Thayer, 1983). The scientizer becomes fixated on detail at the expense of vision. The scientism of the scientizer is a faith, an ideology. An increasingly empirical science allows for the exploration of alternative modes of knowledge-generation. New ideas are needed, and historically these tend to be born more out of lateral thinking breakthrough moments, rather than as a result of unceasing logical rules and procedure. When Thomas Edison was once asked about his rules of procedure he is said to have replied (Thayer, 1983), "'Rules! Hell! There ain't no rules around here! We're tryin' to accomplish somethin'!'"

The "law of the instrument" (Rosnow, 1981) is that if you give a child a hammer, everything will become something that needs pounding. Behavioral scientists are at least as subject to this "law" as anyone else. Ruth Ann Clark (1979) has commented on this tendency to reflexly apply one's favorite, habitual, or only known method to research questions: "Too often, however, the method rather than the research question seems to be the controlling force in a study. If a researcher is familiar with a particular measuring instrument or statistical technique, he or she may seek questions amenable to study by such methods rather than searching for techniques to answer substantial questions of interest." Methods begin to dictate the questions asked, and the answers obtained. Clark continues (p. 58), "Ideally, we should consider widely divergent alternatives to answering the question before selecting a method. Too often, however, this is not the case." Why are these "widely divergent alternatives" of method not more energetically sought by behavioral scientists? One might answer that it is because the search for "widely divergent alternatives" is a function of lateral, and not vertical, thinking. Behavioral scientists have not had the sort of lateral thinking training in graduate school that would stimulate them to think creatively about methodological options.[3]

Creative of Synthesis. It might be that the most creative step that could be taken in many topic areas would not be to collect yet another piece of datum, but to synthesize more of the knowledge that already exists. This can be every bit as creative as another dip into the subject pool. To bring together pieces of data into new composition can clarify that which had been obscure. Too often we disvalue the act of summarizing and connecting that which others have found. Each investigator wants to launch out anew, to bring something original into being, yet this can also be achieved through the ordering of previously obtained data, and teasing-out new lines of thought and insight. Psychological Abstracts alone reports over 25,000 new research studies on human behavior each and every year. This proliferation can lead to a disparate hodge-podge of seemingly disconnected findings. It is the creative investigator who can discover pattern, who can draw into greater unity that which had been far-flung. Otherwise, we drown in data and suffer meaning-lag, where the gap between vast amounts of information, on the one hand, and its implications and relations, on the other, grows exponentially further apart.

Combining present elements into fresh pattern is part of the essence of creativity. Consider the common household doorbell (Varella, 1977): behind this creation are such principles as Ohm's law, electromagnetic effect, magnetic concentration at iron cores, remament magnetism as a function of carbon content, the elastic property of springs, the insulating properties of wire coverings, etc. When the principles are creatively combined, there goes the doorbell. When principles come together, new applications can materialize. We need researchers who are willing to ruminate upon a greater range of that which is known, in an effort to bridge between various of these islands of knowledge. We need problem-solvers, we need inventors, we need tinkerers, we need probers. Suspension bridges, airplanes and computers are each the result of an ingenious combination of principles derived from widely divergent areas. Alexander Graham Bell would never have invented the telephone if he had made it his aim to specialize in the development of smoke signals (Varella, 1977). Sir Isaac Newton is recognized as one of history's most influential scientists -- among Newton's primary contributions to science for centuries to come was to organize a mishmosh of seemingly disconnected facts and laws which turned out to have application to a broad variety of physical phenomena and real-life problems. James Clerk Maxwell unified the laws of electricity and magnetism, again, by arranging a disordered set of phenomena into one comprehensive theory. Synthesizors are needed in the behavioral sciences.

If it is reasonably accurate to say that behavioral scientists are often less creative than they could be in the selection of questions and methods, and in reducing meaning-lag through creative synthesis of existing knowledge, then what can possibly be done?

Creativity Training for Scientists. One remedy suggested by no less an observer than McGuire (1973) is a drastic tactical change in the graduate education of behavioral researchers. For example, McGuire estimated that 90 percent of our training efforts have been directed to the hypothesis-testing phase of research, instead of to the hypothesis-creation phase. To McGuire (p. 450), creative hypothesis-generation is the more important of these two phases: "If our hypotheses are trivial, it is hardly worth amassing a great methodological arsenal to test them."

I suggest that a course in creativity training be offered, through elective or by requirement, to those enrolled in Ph.D. programs in the behavioral sciences. This course would expressly be devoted to the development of lateral thinking in the asking and answering of research questions. Is there a creativity training course such as this in any graduate behavioral science program in America? I have not heard of such

a course. We should hear of such an offering. It should exist nationally and young would-be researchers should be enrolled. In such a creativity training course neophyte researchers would learn to establish greater contact with their right hemispheric capacities, they would become more "whole-brained," to use contemporary parlance for the acquisition of lateral, as well as vertical, thinking skills. Greater dialogue between the hemispheres, a more "fully-functioning brain," a more ambidextrous thinking style. These aspriring researchers would be trained to re-center their viewpoints, so that the familiar could be made to look strange, and the strange familiar (Mc Kim, 1980). They would learn to juxtapose seemingly polar concepts, to transform elements and mentally prob e them in unconventional fashion. They would develop orthographic imagination, in which a mental object of thought is looked at from several directions. They would be helped to acquire associative flexibility through an assortment of creativity calisthenics. Their vision would become invigorated through new types of perceiving and thinking and feeling. These initiates into the scientific community, in sum, would be trained in "seeing" more totally. McKim (p. 62) has said this of "seeing": "Seeing is encountering reality with all of your being. To encounter reality deeply, you cannot leave part of yourself behind. All your senses, your emotions, your intellect, your language-making ability, each contributes to seeing fully."[4] The average behavioral scientist does not "see" in this sense. In my own days in graduate school I had four courses in statistics and two or three in research methodology, and nowhere in that coursework can I claim schooling in creative vision. More recent crops of graduates, and their writings, do not lead me to believe that much has changed in this regard.

Complementarity and Dimension-Shift. It is legitimate to ask at this point, can lateral and vertical thinking syles ever be reconciled into an enlarged science? Can those of us who write with one hand learn to write with the other, so to speak? This is a formidable task. Yet whenever seemingly opposite forces come into dynamic conjunction and transaction, the interplay will be intense, and, rightly handled, productive. Such a transaction carries tremendous power, if seeming chaos and contradiction can be withstood. To creatively experiment with combining these opposites can create new vantage point. Heisenberg had this to say about complementarity of perspectives (Koestler, 1972): "The concept of complementarity is meant to describe a situation in which we can look at one and the same event through two different frames of reference. These two frames mutually exclude one another, but they also complement each other, and only the juxtaposition of these contradictory frames provides an exhaustive view of the appearances of the phenomena." From another angle, it was F. Scott Fitzgerald who said, "The test of a first-rate intelligence is to hold two opposed ideas in your mind at the same time and still retain your capacity to function."

Every once in a while a perspective shift is so great that it constitutes movement into a new "dimension" of perception. New dimensions get added as areas of experience appear that cannot forcibly be squeezed into the dimensions that we now use (Murphy, 1958). A new "dimension" is not solely a rational or intellectual perspective, although this is part of it. One example of a dimension change, according to Gardner Murphy (1958, pp. 151-154), occurred within the 14th and 15th centuries in Italian art, with a shift from two-dimensional to three-dimensional painting. Up from flatness, to arms that appeared to reach off the canvas toward the viewer, with shadow-crossed hills looming in the background, and other forms advancing and receding in space. Another example of a dimension change during this same time was Columbus' voyage beyond the second dimension. Of movements to new dimensions, Murphy (p. 249) said this: "The very nature of discovery lies not so much in more and more thorough exploitation of the material given by a given dimension, a process of infinite subdivision, but rather in the process

of conceving new dimensions." He goes on: ". . . in each instance the period of great creativeness starts at right angles from a previous period of creativeness." Where do the limitations to such creativity lie? According to most who have studied the matter, our assumptions are our greatest limitations. If these are sufficiently challenged, a new dimension will sometimes emerge. Fresh perspectives and evolving dimensions are part of the ongoing development of a scientist striving toward ever greater comprehension.

Personally, I enjoy a model of science that would include as a major construct "contraction-expansion," in alternating rotation (Wilson, 1973). During the expansive phase, imagination is freed of as many encumbrances as possible. During the contractive phase, critical evaluation and decision-making are appropriate. The alternating pattern is the key element, not just within any single study, but within the behavioral sciences entire. Lateral and vertical thinking: may neither be our master, and may we learn to cultivate both, as the tools of a more emancipated behavioral science.

Footnotes

1. The stacked block metaphor reminds me of Albert Wilson's image of knowledge-growth in science as being much like crystal growth: both grow through epitactic accretion to the outer surfaces of already existing bodies. This is a restrictive type of relation (Wilson, 1973).

2. Also, for an excellent overview of critical commentary on contemporary communication research, see the "Ferment in the Field" issue of Journal of Communication, 33, 1983, pp. 1-368, especially the articles by G. Miller, L. Thayer, G. Comstock, S. Ewen, T. Haight, I. de Sola Pool, J. Halloran, and R. White.

3. As Haight (1983) has observed, "Beyond the training of graduate students, the process of collegial review in hiring, tenure, and publication decisions also exercises a stabilizing, or inhibiting, influence . . . when major differences in the definition of appropriate topics, methods, and theoretical approaches exist, the danger of the 'tyranny of the majority' exists also."

4. Rollo May (1975) also pursues this notion of total "encounter" as a central component of the creative process.

Clark, R. A. "Suggestions for the Design of Empirical Communication Studies." Central States Speech Journal, 30, 1979, pp. 51-66.

De Bono, E. New Think: The Use of Lateral Thinking in the Generation of New Ideas. New York: Basic Books, 1968.

Dubos, R. "Science and Man's Nature." In G. Holton (Ed.) Science and Culture. New York: Houghton Mifflin, 1965, p. 265.

Gordon, R. "Practical Theory." Spectra, 18, November 1982, pp. 1-2.

Haight, T. R. "The Critical Researcher's Dilemma." Journal of Communication, 33, 1983, pg. 232.

Kidd, R. F. and Saks, M. J. (Eds.) Advances in Applied Social Psychology: Volume I. Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1980.

Koestler, A. The Roots of Coincidence. New York: Random House, 1972, pp. 54-55.

May, R. The Courage to Create. New York: Norton, 1975.

McGuire, W. J. "The Yin and Yang of Progress in Social Psychology: Seven Koan." Journal of Personality and Social Psychology, 1973, pp. 446-456.

Mc Kim, R. Experiences in Visual Thinking. Monterey: Books-Cole, 1980.

Murphy, G. Human Potentialities. New York: Basic Books, 1958.

Rosnow, R. Paradigms in Transition: The Methodology of Social Inquiry. New York: Oxford University Press, 1981, p. 115.

Thayer, L. "On 'Doing' Research and 'Explaining' Things." Journal of Communication, 30, 1983, pp. 80-91.

Varella, J. A. "Social Technology." American Psychologist, 32, 1977, pp. 914-23.

Weick, K. E. "Affirmation as Inquiry." Small Group Behavior, 13, 1982, pp. 441-50.

Wilson, A. "Systems Epistemology." In I. Laszlo (Ed.) The World System: Models, Norms, Variations. New York: George Braziller Inc., 1973, pp. 134-140.